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Atropa belladonna and associated anticholinergic toxic syndrome: a case report



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ABSTRACT

Atropa belladonna causes poisoning by its anticholinergic effects. Excessive ingestion of this plant may cause peripheral anticholinergic effects, and moreover, a more severe clinical picture can be seen due to its central effects which can result in lethargy, coma or even death.

In this article, we aimed to present a case with Atropa belladonna intoxication and to emphasize that Atropa belladonna poisoning should be kept in mind in cases with anticholinergic findings.

Keywords: Atropa belladonna, anticholinergic effects, intoxication

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INTRODUCTION

Atropa Belladonna (AB), as known as deadly nightshade, is a plant of Solanaceae family, grown in barren and stony land and has oval leaves, green-purple flowers, and round shaped bright black fruits, which are highly poisonous. Leaves and the fruits of the plant include atropine, scopolamine and hyoscyamine alkaloids.¹ Intoxication with AB is mainly due to anticholinergic effects of these alkaloids. AB intoxication has been described both in pediatric and adult age groups.^{1,2} While accidental exposure to AB is the primary cause of AB intoxication in children, ingestion of the plant by suicidal intentions or plant abuse due to its hallucinogenic effects is the primary cause in adulthood.³ Alkaloids within AB blocks both central and peripheric muscarinic receptors competitively after ingestion of the plant. Symptoms of peripheric and central anticholinergic effects are seen in intoxication with AB.^{4,5} Confusion, anxiety, delirium, hallucination, myoclonus, dysarthria, choreoathetosis, hyperactive deep tendon reflexes, convulsions, and coma may occur as central anticholinergic effects, according to the level of intoxication. On the other hand, peripheral anticholinergic effects, such as mydriasis, peripheral vasodilatation, hyperpyrexia, tachycardia, urinary retention, decreased gastrointestinal motility, and reduced secretions may also be seen.⁶

In this case report, we aimed to present an AB intoxication in an elderly and to review the literature.

CASE REPORT

A 71-year-old man presented with dizziness after ingestion of 5-6 AB fruits accidentally. He told the physicians in the emergency department that the fruits looked like blackberries. Despite gastric lavage and activated charcoal applied, his consciousness deteriorated, and he was transferred to intensive care unit of Abant Izzet Baysal University Hospital. He looked sleepy and was neither cooperated nor oriented on admission. He had tachycardia (122 beats per minute), but his blood pressure and respiration rate were normal. Skin of his trunk and the extremities were hot and reddish while the pupils of the eyes were dilated. A Glasgow coma scale point was 14 on admission. He has been monitored intensively for the vital signs, a urine catheter applied and oral intake was stopped. Anticholinergic signs of the AB intoxication resolved except for tachycardia, and a Glasgow Coma Scale point reached to 15 and he transferred to internal medicine ward after two days of intensive care unit follow-up.

On admission onward, his condition was generally well, conscious, oriented and cooperated. His vital signs were normal other than rapid heart rate (110 beats per minute). The ECG revealed a sinus tachycardia. His chronic medications (metformin 1000mg twice a day for diabetes mellitus, amlodipine 5 mg a day for hypertension, ipratropium inhaler four times a day and fluticasone twice a day for chronic obstructive pulmonary disease) ordered as he routinely used. He complains to have

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constipation, but his bowel sounds were normal. The tachycardia was resolved during follow-up and normal defecation initiated after oral intake resumed. Although redness of the skin mostly diminished, rashes on his arms resisted. Allergic contact dermatitis was the diagnosis of these rashes after dermatology consultation. Ophthalmologic consultation revealed no signs of glaucoma. Initially, elevated CRP levels were reduced from 82.9 mg/dl to normal range. Hemogram and biochemical markers were normal from the beginning of the follow-up. His vital signs, including heart rate and body temperature, remained in normal range. He discharged from hospital after the uneventful follow-up period.

DISCUSSION

The intoxication of AB usually caused by accidental or suicidal ingestion of the round shaped, blackberry looked fruits of the plant.^{1,2,7} Alkaloids within the plant competitively block the central and postganglionic muscarinic receptors and cause anticholinergic toxic syndrome.^{4,5,7} The level of the intoxication depends on the dose of alkaloids ingested. The dose of the alkaloids in leaves and fruits of the plant varies according to the subspecies of the plant. Some hybrid AB plants may not cause typical symptoms of anticholinergic toxic syndrome.⁷

Symptoms of the intoxication are caused by atropine, scopolamine and hyoscyamine ingredients of the plant.⁶ Central anticholinergic effects of poisoning are confusion, anxiety, delirium, hallucination, myoclonus, dysarthria, choreoathetosis, hyperactive deep tendon reflexes, convulsions, and coma. Peripheral anticholinergic effects are mydriasis, peripheral vasodilatation, hyperpyrexia, tachycardia, urinary retention, decreased gastrointestinal motility and decreased secretions. Present case had tachycardia, widespread skin redness in trunk and extremities, and mydriatic pupils as peripheral signs of intoxication. Due to the risk of urinary retention, bladder catheterization performed. Constipation defined by the patient was probably due to cessation of oral intake because bowel sounds were normoactive and normal defecation followed the initiation of oral intake. Visual hallucination and delirium reported in a report of 8 cases by Schneider et al., whom one of them required ventilation support subsequently.⁸

A case series of Caksen et al. reported leukocytosis in 3, hyperglycemia in 17, pyuria in 2, elevated aspartate transaminase levels in 4 and metabolic acidosis in one case. Caksen et al. reported a case series.⁹ In a report by Saritas et al., one geriatric case declared that they consumed AB plant because of it

looked like blackberries while other ate it because he heard rumors that AB regulates blood glucose levels.¹⁰ The case presented in this study was also consumed AB plant by chance of it looked like blackberries. Another report was by Heindl et al., the case consumed AB plant by suicidal intention, who admitted with somnolence and excitability which revealed five times 2mg of physostigmine.¹¹

Treatment of AB intoxication is mainly conservative. Gastric lavage and activated charcoal are suggested for decontamination.⁷ Benzodiazepines are recommended for sedation in agitated cases.¹⁰ Physostigmine, a reversible choline esterase inhibitor, is indicated in cases of delirium, agitation, and severe anticholinergic effects.^{11,12} Our case has not required physostigmine.

CONCLUSION

In conclusion, patients in the emergency department who presented with confusion, and anticholinergic symptoms of unknown etiology may require detailed observation for possible BA poisoning. Intoxication with psychotic drugs, such as phenothiazines, tricyclic antidepressants should be kept in mind for differential diagnosis.

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